

# SCOLIOSIS-

# Should I participate

# in Sports?

Dr. Daine O. Clarke

# OUTLINE

- Allotted time= 20 minutes
- Planned time= 15 minutes
- To Facilitate some rest

# BACK PAIN IN THE CHILD ATHLETE

Dr. Shomari Prince

# SCOLIOSIS-

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# Definition

- A lateral deviation of the normal vertical line of the spine which, when measured by PA (postero-anterior) spine X-ray, is greater than ten degrees (SRS)
- Scoliosis is a descriptive term, not a diagnosis

# Incidence

- **2-3 PERCENT OF THE POPULATION**



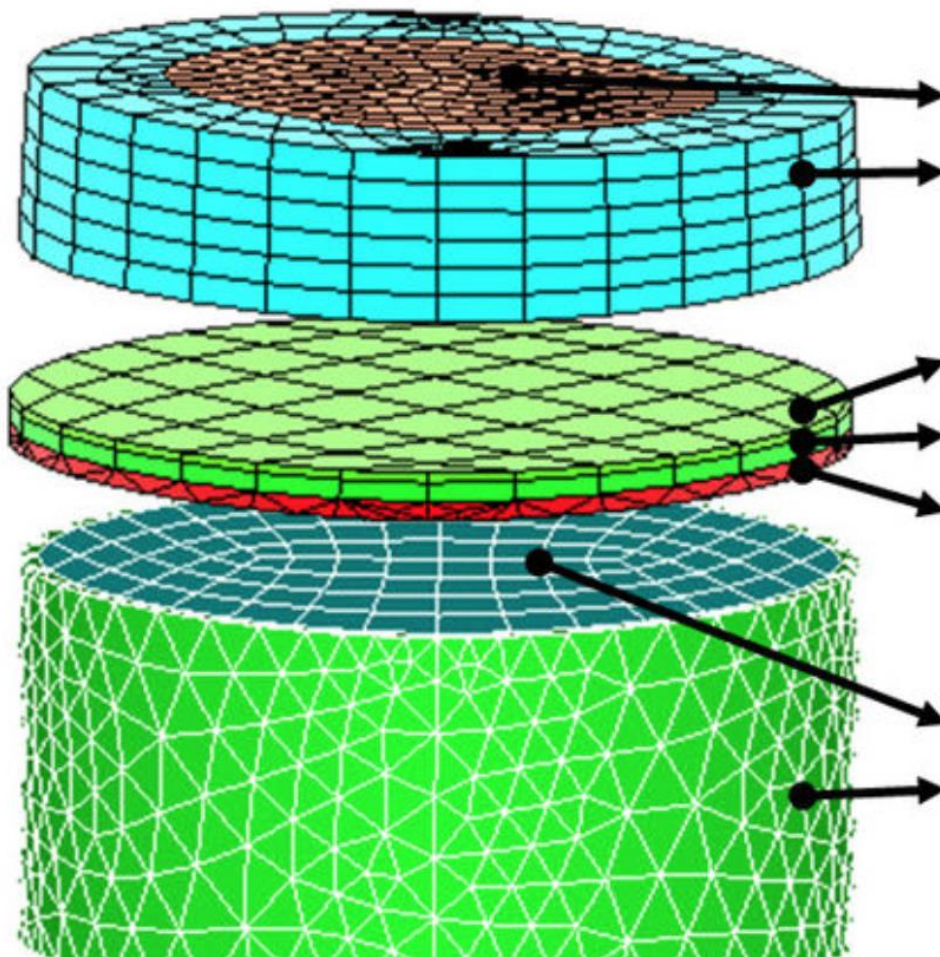
# Aeitiology

**Genetics**

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graph TD; A[Genetics] --> B[Structural Elements of the Spine or Muscle]; B --> C[Damage of Connective Tissue-Marfan Syndrome];
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**Structural Elements of the Spine or Muscle**

**Damage of Connective Tissue-Marfan Syndrome**



### **Intervertebral Disc:**

- Nucleus pulposus
- Annulus fibrosus

### **Growth Plate layers**

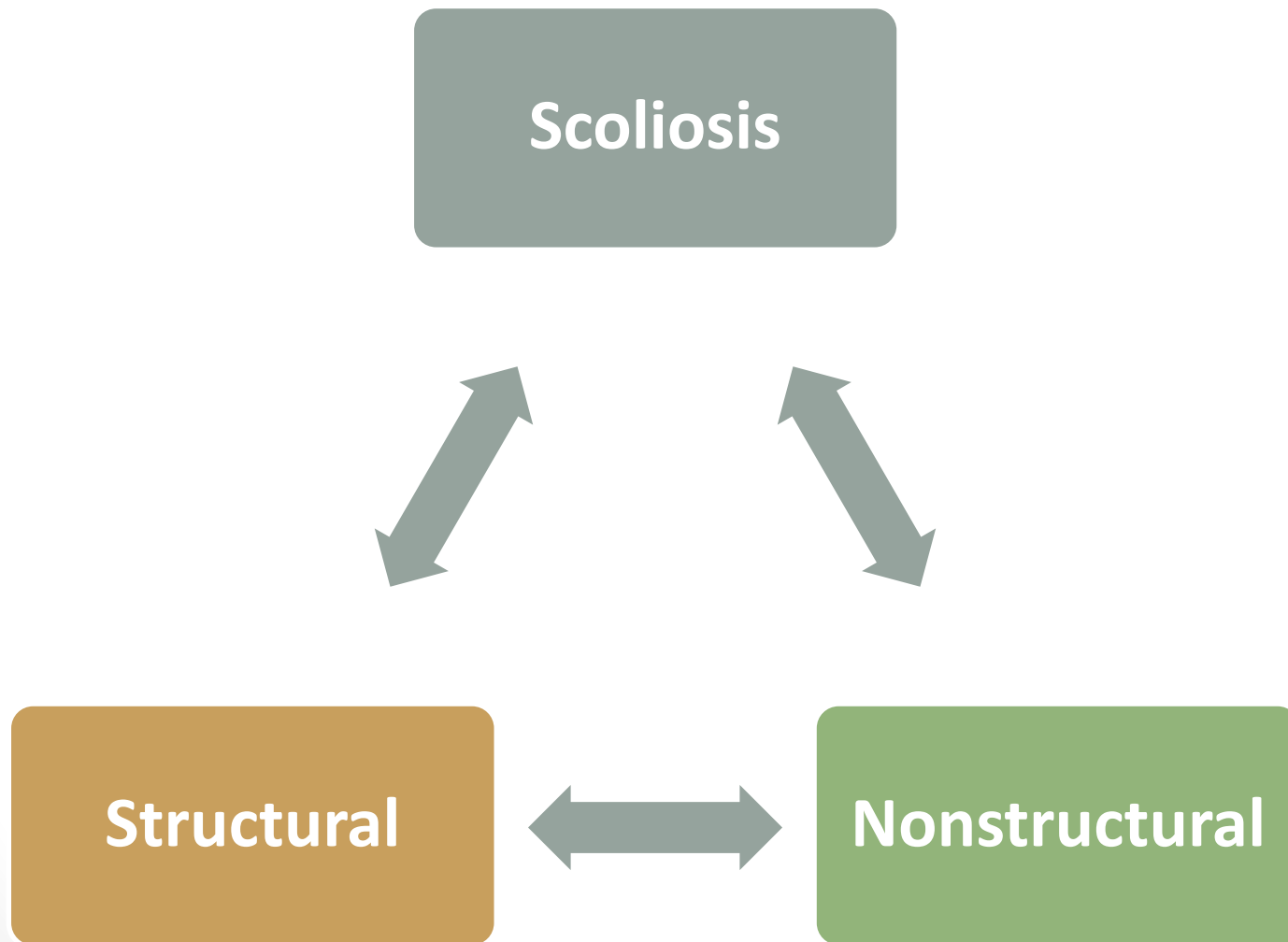
- Sensitive layer
- Newly formed bone
- Transition zone

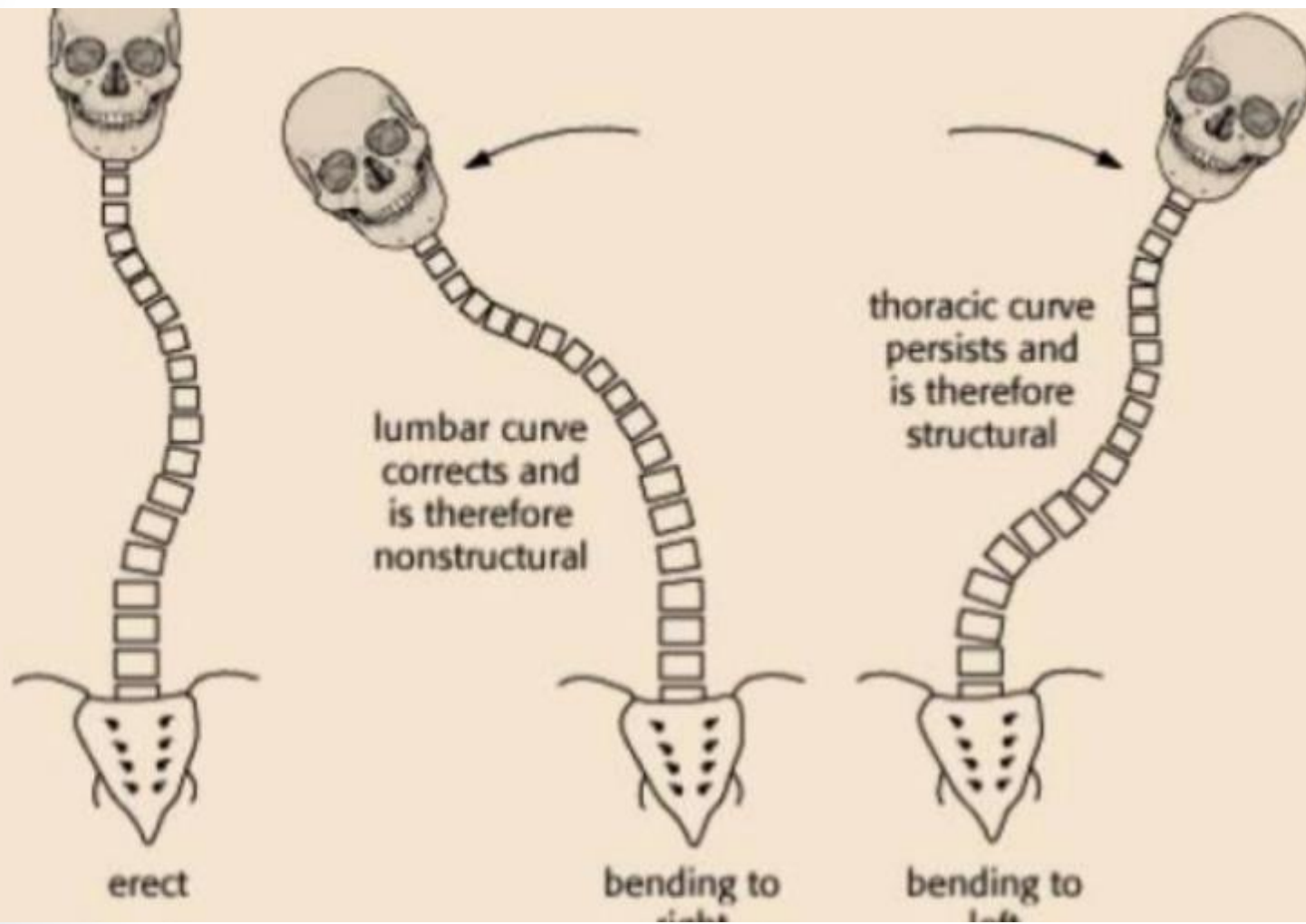
### **Vertebral Body:**

- Trabecular bone
- Cortical bone



# Classification





# Nonstructural

- No deformity of the vertebrae and the lateral curvature disappears with bending towards the convex side
- Causes:
  - ❖ Poor core stability (postural scoliosis)
  - ❖ Compensatory conditions, resulting from tilting of the pelvis from real or apparent shortening of one leg (compensatory scoliosis).
  - ❖ Unilateral protective muscle spasm, as in some cases of prolapsed vertebral disc

# Structural Scoliosis

- Characterised by a deformity of the vertebrae.
- Physical examination reveals that lateral bending does not influence the deformity, or even worsen it.
- Divided in two subgroups:
  - ❖ Non-idiopathic: a group with a clear underlying cause and a
  - ❖ Idiopathic: group where the cause is unknown. By far the largest group of structural scoliosis is idiopathic in nature.

***Non-idiopathic***



Congenital

Neuromuscular Disorders

Neurofibromatosis

Mesenchymal disorders

Degenerative

***Idiopathic***

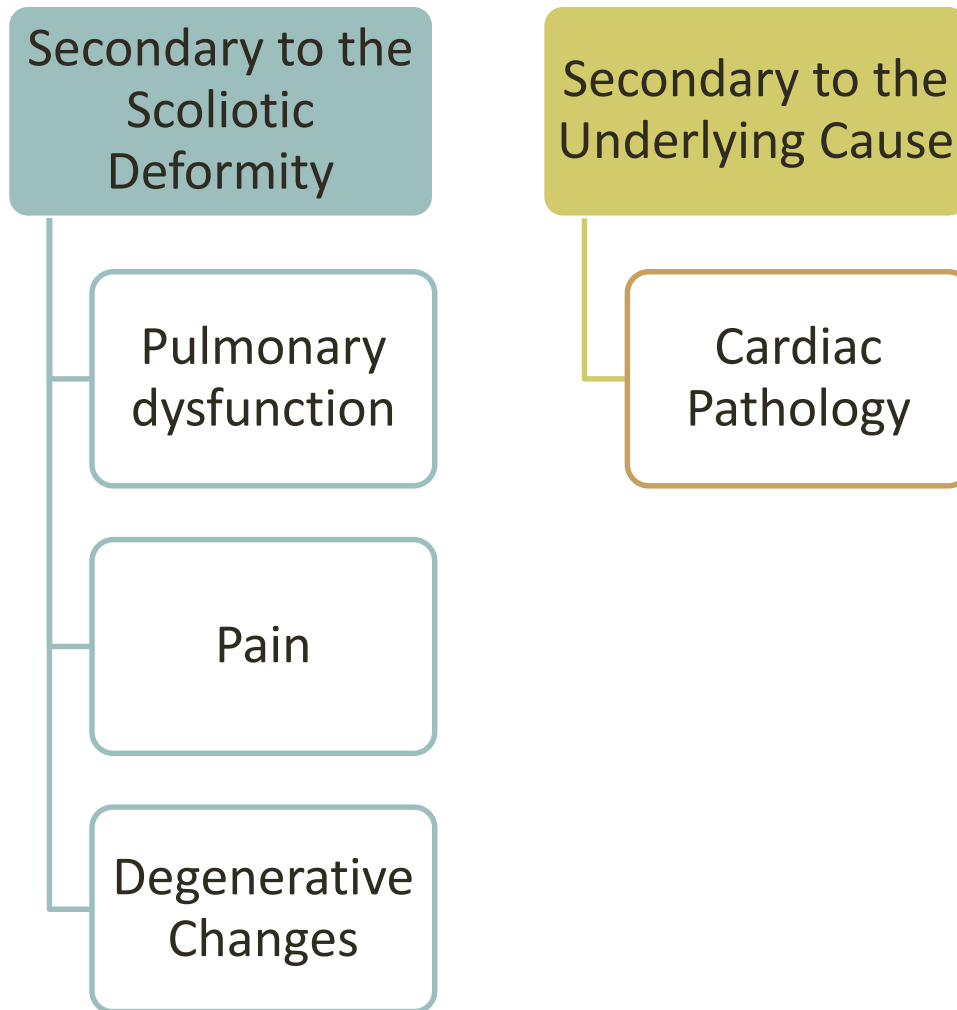


Infantile

Juvenile

Adolescent

# Concerns



# Concerns



Effect of Sports on the  
Scoliotic Deformity

Effect of the Deformity on  
Sports Participation

# What Do We Know?





# Scoliosis and Sports Recommendation

- In general, there is little scientific evidence related to sports participation and scoliosis



# What Has History Thought Us?



# Available Data

- Increased thoracic kyphosis and lumbar lordosis in female gymnast
- Bulgarian rhythm gymnasts ; a 10-fold increase in the rate of scoliosis.
- Decreased Spine Flexibility and Tight Hamstring
- Increased Pulmonary Function with Sporting Activity
- Increased Self Esteem

# Demystifying the myth

- 1941 American Orthopaedic Association- exercise would worsen curvature
- Wide spread recommendation against exercise in scoliosis patients
- Greatest Level of Evidence available; Level 3 Case Control series, majority Level 5 evidence

- Wood, stated that “There is no objective evidence in the literature to suggest that active participation in any sport is directly associated with worsening of scoliotic curvatures beyond that of the natural history of the disorder
- Reiterated Patel & Baker

# Sports Participation and Non-Structural Scoliosis

*Non-structural scoliosis*, there are no restrictions on sports participation

Postural scoliosis will benefit from sports participation

# Sports Participation & Structural Scoliosis

Most people with structural scoliosis are able to participate normally in sports and recreational exercise

In *non-idiopathic scoliosis*, a sports recommendation is dependent on the underlying disease

In *idiopathic scoliosis*, there is no evidence that sports participation is detrimental to the scoliosis

# Possible Effects of Sports Over the Long Term

Cardiopulmonary disease

Degenerative arthritis

Curve progression

Pain

Psychological



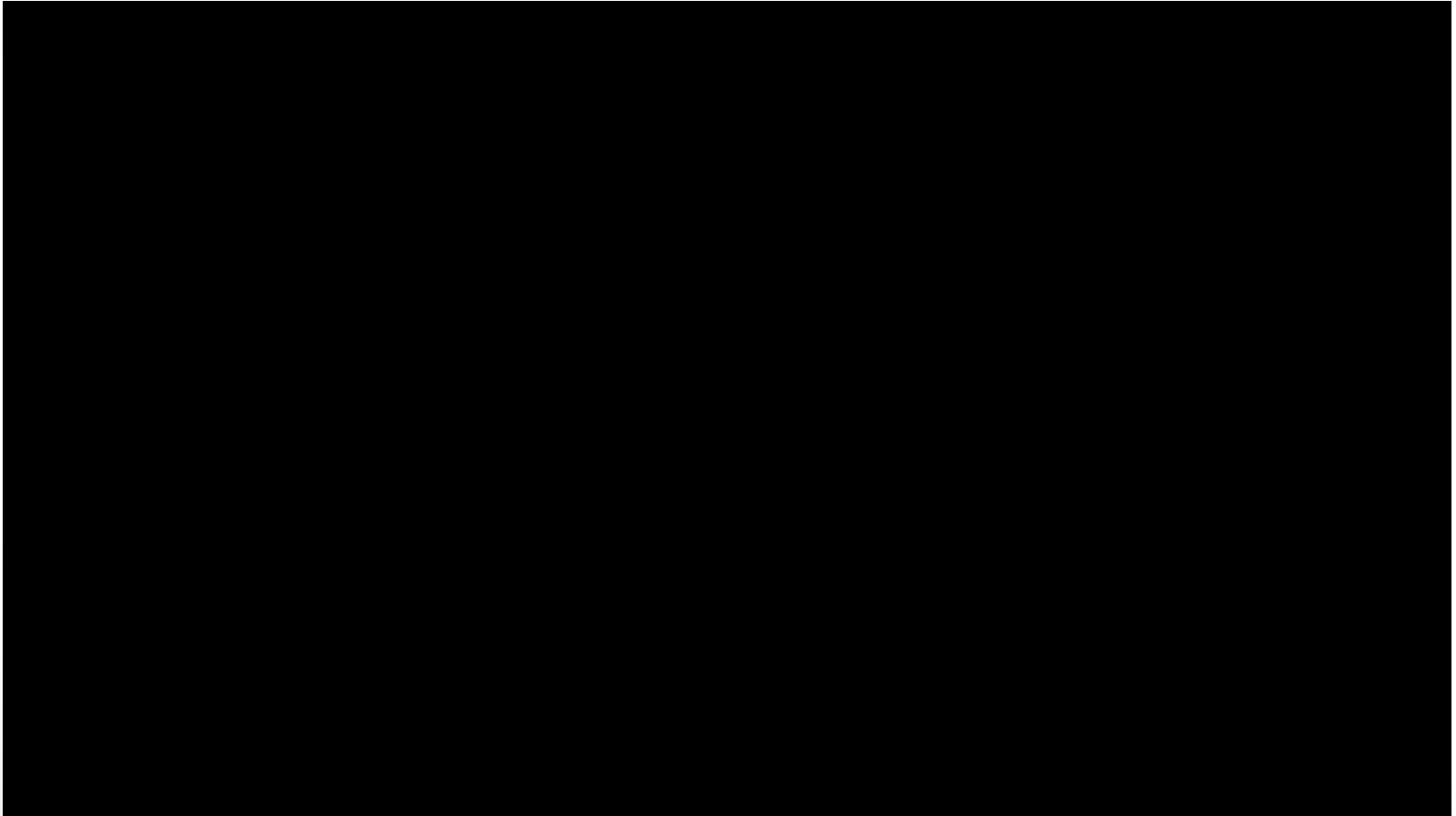
# Benefits of Sports Participation in the Scoliosis Patient

- Stimulate self-esteem and physical fitness, which are often diminished in scoliosis patients
- Athanasopoulos showed a significant increased pulmonary function in girls with idiopathic scoliosis, training four times a week with 30 minutes on the cycloergometer for two months

# CAUTION

- Sports with extreme axial loading, such as weight-lifting or where there are extreme hyperlordosis patterns, are potentially harmful and require careful monitoring

# Conclusion



THANK YOU



# References

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